

What is claimed is:

1. An apparatus for displaying a stereoscopic two-dimensional picture comprising:

a display unit having a flat image display screen for displaying a two-dimensional picture containing a stereoscopic image;

an image transmitting panel placed parallel to and apart from said image display screen, the image transmitting panel having a microlens array of a plurality of lenses and an effective area larger than that of the stereoscopic image contained in said two-dimensional picture, and a lens frame area surrounding a perimeter of the effective area of said microlens array, so that said image transmitting panel generates an image-formation plane for displaying a real image of said two-dimensional picture in a space located on an opposite side to said display unit with respect to said microlens array; and

a stereoscopic frame for defining a space for accommodating said image-formation plane.

2. An apparatus for displaying a stereoscopic two-dimensional picture according to claim 1, wherein said microlens array is a micro-convex-lens board formed of a plurality of lens systems each consisting of a pair of convex lenses coaxially arranged, the lens systems being arranged in the two-dimensional manner so that the optical axes of the lens systems are parallel to one another.

3. An apparatus for displaying a stereoscopic two-dimensional picture according to claim 2, wherein said microlens

array forms an erect real image of the two-dimensional picture.

4. An apparatus for displaying a stereoscopic two-dimensional picture according to claim 1, wherein said lens frame area is a dark color area.

5. An apparatus for displaying a stereoscopic two-dimensional picture according to claim 1, further comprising a supporting member supporting said lens frame area and defining a distance between the image display screen and the image transmitting panel, at least an optical path side of the supporting member being a dark color.

6. An apparatus for displaying a stereoscopic two-dimensional picture according to claim 1, further comprising a picture signal supply circuit for generating a picture signal for exhibiting an image portion other than stereoscopic images which is filled with a dark color in the two-dimensional picture to be reproduced and supplying the picture signal to said display unit.

7. An apparatus for displaying a stereoscopic two-dimensional picture according to claim 1, further comprising an image-formation-spot indicating unit placed adjacent to said image-formation plane in the stereoscopic frame .

8. An apparatus for displaying a stereoscopic two-dimensional picture according to claim 1, wherein said stereoscopic frame is a glass tank filled with water.)

9. An apparatus for displaying a stereoscopic two-dimensional picture according to claim 1, further comprising:
a second display unit placed on a bottom side of the glass

tank with water and having a second flat image display screen for displaying a two-dimensional picture containing a second stereoscopic image;

a second image transmitting panel placed parallel to and apart from said second image display screen, the second image transmitting panel having a microlens array of a plurality of lenses and an effective area larger than that of the stereoscopic image contained in said two-dimensional picture, and a lens frame area surrounding a perimeter of the effective area of said microlens array, so that said second image transmitting panel generates an image-formation plane for displaying a real image of said two-dimensional picture in a space located on an opposite side to said second display unit with respect to said microlens array.

10. An apparatus for displaying a stereoscopic two-dimensional picture according to claim 1, wherein said display unit comprises;

a back-light illuminating unit;

a color liquid crystal display panel arranged so as to cover a whole surface of the back-light illuminating unit; and

picture signal supply unit supplying a picture signal including two-dimensional picture data and stereoscopic image data to the color liquid crystal display panel.

525
A4
11. A method for displaying a stereoscopic two-dimensional picture comprising the steps of:

providing a display unit having a flat image display screen for displaying a two-dimensional picture containing a

stereoscopic image;

arranging an image transmitting panel parallel to and apart from said image display screen, said image transmitting panel having a microlens array of a plurality of lenses and an effective area larger than that of the stereoscopic image contained in said two-dimensional picture, and a lens frame area surrounding a perimeter of the effective area of said microlens array; and

arranging a stereoscopic frame for defining a space for accommodating said image-formation plane so that said image transmitting panel generates an image-formation plane for displaying a real image of said two-dimensional picture in a space located on an opposite side to said display unit with respect to said microlens array.

12. A method for displaying a stereoscopic two-dimensional picture according to claim 10, further comprising a step of generating a picture signal for exhibiting an image portion other than stereoscopic images which is filled with a dark color in the two-dimensional picture to be reproduced and supplying the picture signal to said display unit.

13. A method for displaying a stereoscopic two-dimensional picture according to claim 10, further comprising a step of placing an image-formation-spot indicating unit adjacent to said image-formation plane.